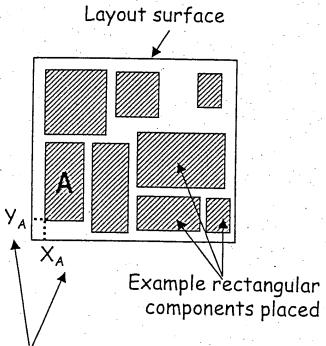
Attorney Docket No.: 2879-030564

1/32

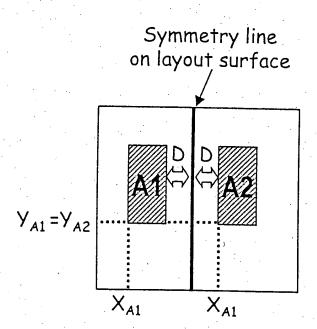


Component A's (x,y) coordinates relative to layout surface

Figl (Prior Art)

Attorney Docket No.: 2879-030564

 $\partial/3\partial$ 

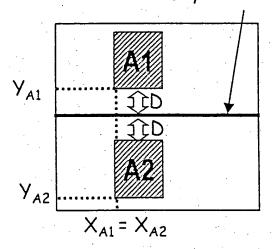


Components A1 and A2 are symmetrically placed about the vertical symmetry line

Fig 2 ( prior arT)

3/32

Symmetry line on layout surface



Components A1 and A2 are symmetrically placed about the horizontal symmetry line

Fig.3 (prior art)

4/32

Fig 4

One example component "R"

( Prior arT)

















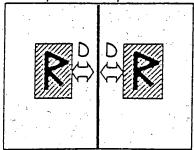
8 possible geometric orientations for any component "R"

Fig 5 (prior art)

Attorney Docket No.: 2879-030564

5/32

Symmetry line



Components placed with simple symmetric pair constraint

F156 Cprior art)

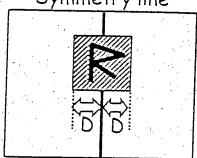
Components placed with mirror symmetric pair constraint

Fig 7 (prior ait)

Attorney Docket No.: 2879-030564

6/32

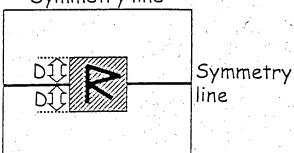
Symmetry line



Component placed with self-symmetry constraint (vertical symmetry line)

Fig 8 c prior art)

Symmetry line



Component placed with self-symmetry constraint (horizontal symmetry line)

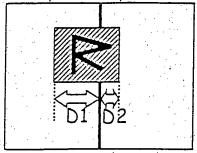
Fig 9

(Prior arT)

Attorney Docket No.: 2879-030564

7/32

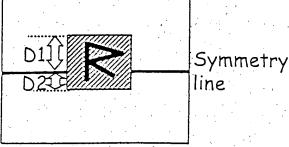
Symmetry line



Component placed with asymmetry constraint (vertical symmetry line)

Fig 10 (Prior art)

Symmetry line

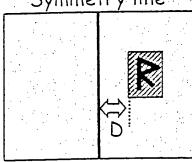


Component placed with asymmetry constraint (horizontal symmetry line)

CIRCUITS AND PACKAGES" Attorney Docket No.: 2879-030564

8/32

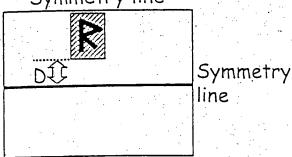
Symmetry line



Component placed with fixed symmetric offset constraint (vertical symmetry line)

Fig 12 (Prior arT)

Symmetry line

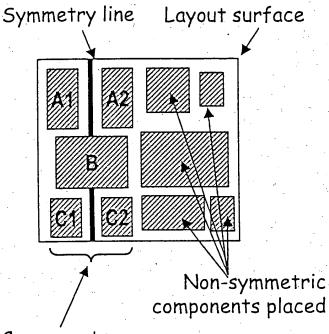


Component placed with fixed symmetric offset constraint (horizontal symmetry line)

Fig 13 ( Prior arT)

Attorney Docket No.: 2879-030564

9/32



Components
A1-A2, B, C1-C2
obey various symmetry
constraints.

Fig 14 (prior arT)

10/32

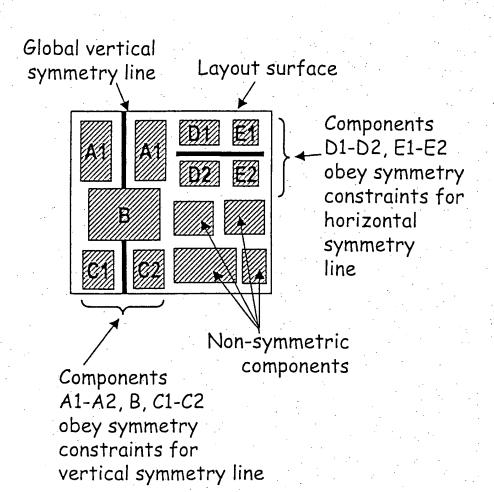
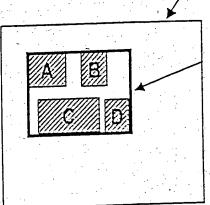


Fig 15 (prior arT)

Attorney Docket No.: 2879-030564

11/32

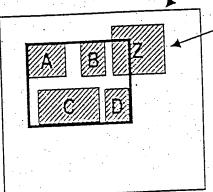
Layout surface



Components
A,B,C,D define
a group, with a
minimum bounding
rectangle (bold line)

Fig 16 (prior grt)

Layout surface

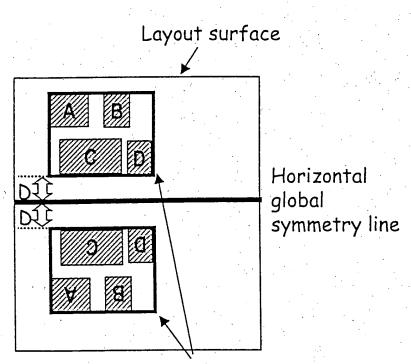


It is <u>illegal</u> for components not in this group to be placed anywhere inside (or overlapping) this minimum bounding rectangle. Here, Z's location is illegal

FIS 17 (Prior arT)

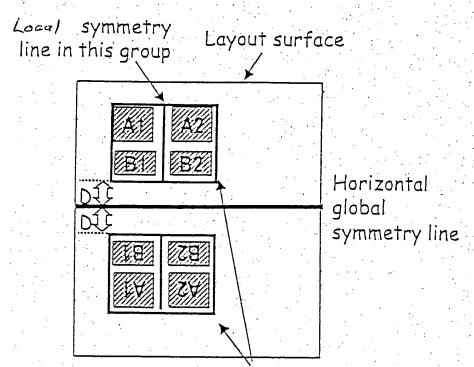
Attorney Docket No.: 2879-030564

12/32



Group A,B,C,D and its symmetric sibling placed with a group symmetric pair constraint, relative to a global horizontal symmetry line

Fig 18 (prior art) 13/32



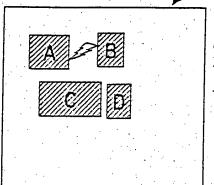
Each Group A1,A2,B1,B2 has a local symmetry line and the entire group and its symmetric sibling are placed with a group symmetric pair constraint relative to a global horizontal symmetry line

Fig 19 (Prior art)

Attorney Docket No.: 2879-030564

14/32

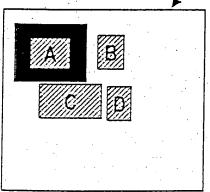
Layout surface



Component A is sensitive to electrical disruption from component B.

Fig 20 (Prior arT)

Layout surface



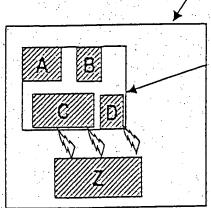
An isolation structure placed around the perimeter of component A can mitigate this. A's size in this placement problem increases, and spacing rules to neighbors change, too

Fig 01 (Prior arT)

Attorney Docket No.: 2879-030564

15/32

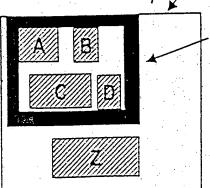
Layout surface



Group A,B,C,D is sensitive to electrical disruption from component Z.

Fig 22 (Prior arT)

Layout surface



An isolation structure placed around the perimeter of group A,B,C,D can mitigate this.
Group's size in this placement problem increases, and spacing rules to neighbors change, too

Fig 23 (Prior a,T)

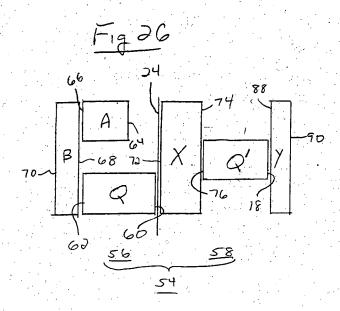
Attorney Docket No.: 2879-030564

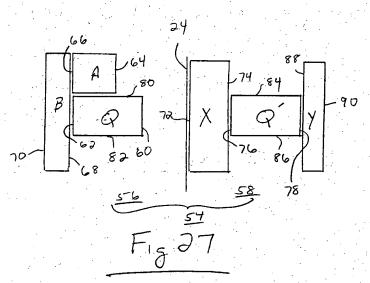
16 /32 Fig. 24

Component	Placement Constraint	<u>Size</u>	
		Width	<u>Height</u>
A	Non-Symmetric	2	2
В	Non-Symmetric	1	5
Q	Symmetric*	3	2
X	Non-Symmetric	2	5
Y	Non-Symmetric	1	5

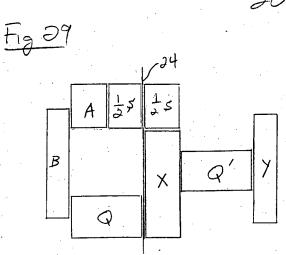
<sup>\*</sup> Component can be designated for pair-symmetric, selfsymmetric, asymmetric, or fixed symmetric offset placement.

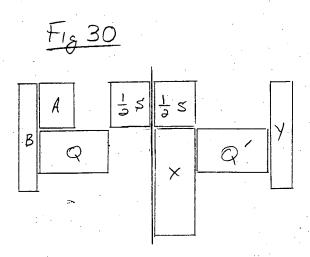






20/32





Attorney Docket No.: 2879-030564

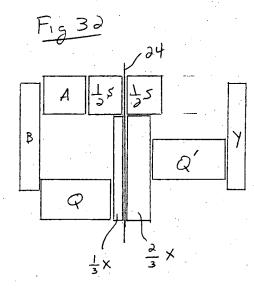
= place on ileft side of global symmetry line 24

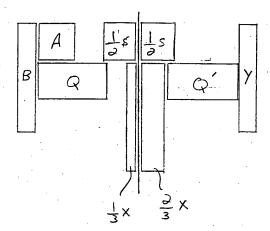
[ ] = place on right side of global symmetry linear

= place pair-symmetrically on both siles of global symmetry line 24

= place self-symmetrically on both sides of global symmetry linedy

= place Asymmetrically on both sides of global symmetry line 24





Attorney Docket No.: 2879-030564

23/32

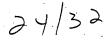
= place on dest side of global symmetry line 24

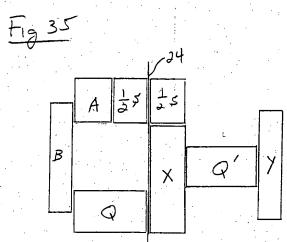
[] = place on right side of global
symmetry line of

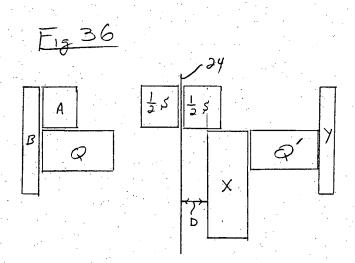
= place pair-symmetrically on both sites of global symmetry line 24

= place self-symmetrically on both sides of global symmetry linedy

= place fixed symmetric offset to one side of global symmetry line dy (dashed outline = place on right side; solid outline = place on left side)

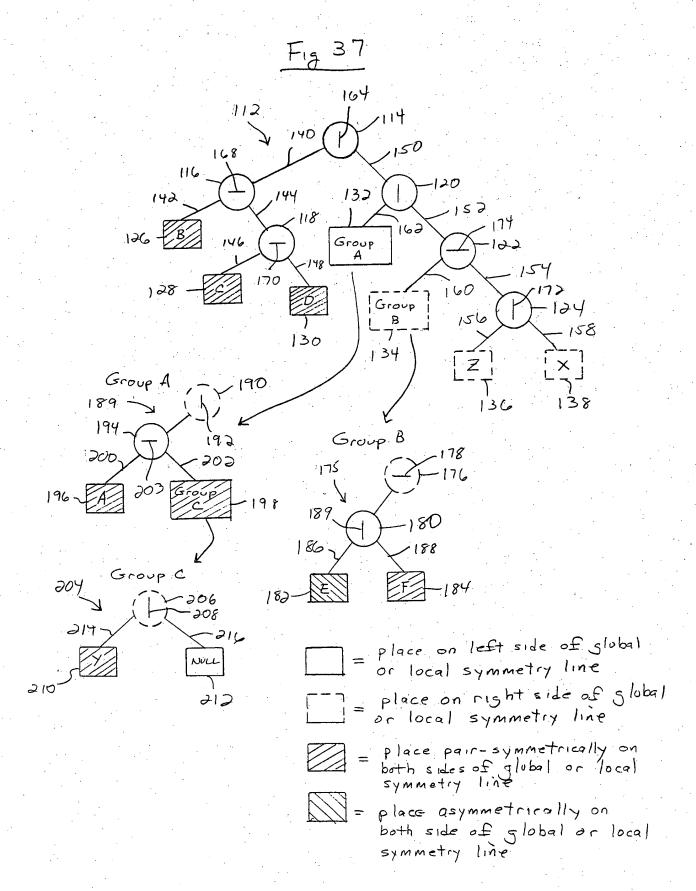


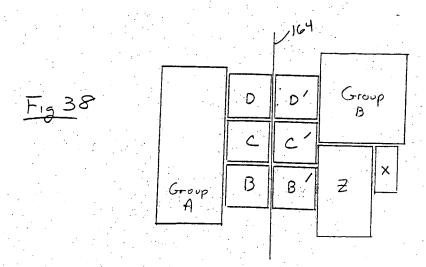


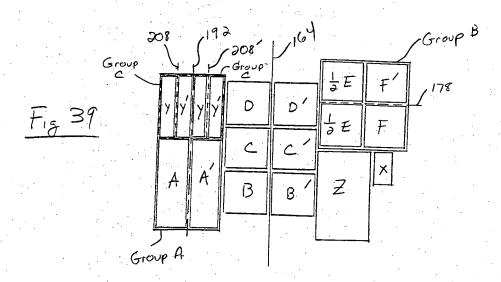


Attorney Docket No.: 2879-030564

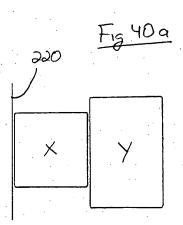
25/32

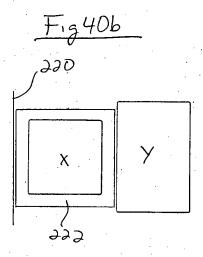






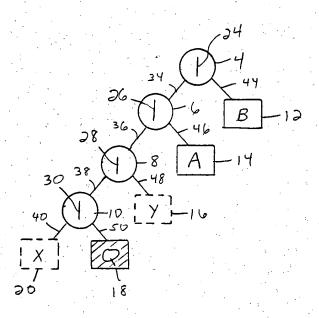
27/32



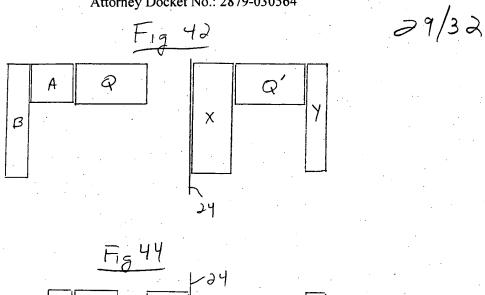


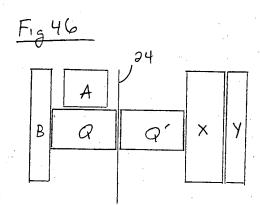
Attorney Docket No.: 2879-030564

28/32 Fig4/



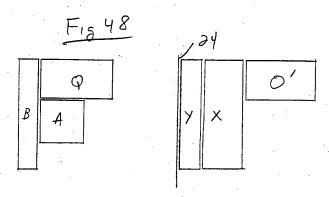
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Attorney Docket No.: 2879-030564

30/32

F13 43

Attorney Docket No.: 2879-030564

31/32

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Attorney Docket No.: 2879-030564

32/32

